

IN THE SPECIFICATION

Please amend paragraph [0001] as follows.

This application is a continuation-in-part of U.S. Patent Application No. 09/778,186, filed February 7, 2001, which in turn was filed as a continuation-in-part of U.S. Patent Application No. 09/220,733, filed December 24, 1998, now U.S. Patent 6,370,120. Both of these previously filed applications are hereby incorporated by reference herein.

Please amend paragraph [0002] as follows.

The following commonly assigned U.S. patent applications are hereby incorporated herein by reference:

| <u>Serial/Patent No.</u> | <u>Filing/Issue Date</u> | <u>Attorney</u> |
|--------------------------|-----------------------------------|-----------------|
| 08/751,923 08/751,203 | November 18, 1996 (now abandoned) | VON 96-001 |
| 08/798,350 | February 10, 1997 (now abandoned) | VON 97-004 |
| 09/779,092 | February 8, 2001 | RIC0000031 |
| 6,246,978 | June 12, 2001 | GCK94024 |

Please amend paragraph [0031], as follows.

The techniques of the present invention thus allow structured objective measurements in the operational environment to be used instead of subjective tests to determine the impact of dropped packets on the overall incidence of reports of "None", "Some", and "Much" for speech distortion, and thus produce a model for estimating MOS in which the estimated MOS values vary directly and consistently with the magnitude of the dropped packet rate. This greatly enhances the extensibility and ease of calibration of the method taught in U.S. Patent Application No. 09/220,733, now U.S. Patent No. 6,370,120, to untested configurations with respect to codec and transmission protocol. The present invention can be used in a variety of ways. For example, a phone system or a portion of a phone system (e.g., a line or a piece of equipment) can be tested before being used commercially. In another application, a workstation stores and analyzes objective measurements. This workstation can be used by an engineer troubleshooting a network

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Page 2

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or a sales engineer comparing qualities of various options. The present invention could also be used in an automatic, real-time control system for a communications network.

Please amend paragraph [0051] as follows.

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Further details on hybrid and end-to-end packet-switched networks are provided in commonly assigned patent applications Serial No. 08/751,023 08/751,203, filed November 18, 1996, now abandoned, (Attorney Docket No. VON-96-001) and U.S. Patent No. 08/798,350, filed February 10, 1997, now abandoned, (Assignee Docket No. VON-97-004), each of which is incorporated herein by reference.

Please amend paragraph [0052] as follows.

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Fig. 2 describes the manner in which data from objective and subjective measurements of a communications service may be processed in accordance with a preferred embodiment of the present invention. In Fig. 2 data flow diagram 200 comprises objective measurements 212 which may be used to derive perceived impairments 216 by the application of transform 214. Objective measurements 212 comprise signal power (PWR), C-weighted noise(NSE), echo path delay (EPD), echo path loss (EPL), and waveform distortion (DST). Magnitudes of the measurements 216 will affect subjective ratings of perceived impairments, namely low volume (LV), noise (NS), echo (EC), and speech distortion (SD). Note that various combinations of objective measurements 212 will affect different ones of the subjectively rated impairments 216. As described earlier herein, empirical experiments under varying conditions of signal power, noise level, etc. enable a transform 214 to be constructed which accurately predicts impairments 216 that will be reported in response to a given combination of objective measurements 212. A manner in which transform 214 may be established by empirical experiments is described briefly earlier herein and in U.S. Patent Application No. 09/220,733, now U.S. Patent No. 6,370,120, and a manner in which that empirical data can be captured and represented in two exponential functions is detailed in U.S. Patent Application No. 09/779,092.

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[0055] A measurement set 210 may comprise objective measurements 212 transformed into a set of impairments 216 or may comprise a set of subjectively rated impairments 216 directly obtained from test calls through a communications service. A large number of measurement sets

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Page 3

A 6
210 pertaining to given communication service may be said to comprise the service attribute test (SAT) data 220 for the service. As described in U.S. Patent Application No. 09/220,733, now U.S. Patent No. 6,370,120, the SAT data 220 for a given communication service may be convolved with an effects matrix 260 to yield an estimate of mean opinion score and P(UDI) for the service. In a similar fashion to transform 214, effects matrix 260 is a prediction model that may be constructed from large numbers of empirical observations to correlate reported impairments to overall MOS and P(UDI) values.

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Page 4